

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Currently Amended) ~~[[An]]~~ A thermal imaging system comprising:

a focal plane array (FPA) having a plurality of pixels;

a lens adapted to focus external scene radiation comprising heat radiation from a scene in front of the lens onto the FPA behind the lens;

a shutter located in front of the lens,

the shutter, lens and FPA comprising an imaging system,

the shutter having a closed state that ~~produces a spatially uniform reference image signal~~ prevents the external scene radiation from entering and allows internal radiant flux of the imaging system to reach detectors of the FPA as a spatially uniform reference image signal[[,]] and an open state that allows an open state image signal that includes the external scene radiation and the internal radiant flux ~~from~~ of the system to reach detectors of the FPA; and

a signal processing module operatively coupled to the FPA, and adapted to correct the open state image signal based on the ~~spatially uniform~~ reference image signal.

Claim 2. (Original) The system of claim 1 further comprising:

a shutter controller operatively coupled to the shutter, and adapted to command the shutter to its opened and closed states.

Claim 3. (Original) The system of claim 2 further comprising:

a system controller communicatively coupled to the shutter controller and the signal processing module, and adapted to control operation of the imaging system.

Claim 4. (Original) The system of claim 3 where the system controller is communicatively coupled to a network thereby enabling the imaging system to communicate with other systems also communicatively coupled to the network.

Claim 5. (Canceled)

Claim 6. (Canceled)

Claim 7. (Original) The system of claim 1 further wherein the shutter has a lens side surface that is located within five millimeters of the front of the lens.

Claim 8. (Currently amended) The system of claim 1 wherein for any one session of imaging system operation, each of a plurality of open state image signals are corrected for pixel-to-pixel non-uniformities and offset based on the open and closed state image signals.

Claim 9. (Original) The system of claim 1 wherein the closed state image signal is periodically generated to account for changes in the imaging system.

Claim 10. (Currently Amended) A method for thermally imaging a scene, where method is carried out by an imaging system configured with a front lens mounted shutter, lens, and focal plane array (FPA), the method comprising:

closing the front lens mounted shutter so that external ~~scenes are~~ scene heat radiation is blocked from being imaged through the lens onto the FPA;

generating a closed state image signal that includes internal radiant flux of the imaging system;

opening the front lens mounted shutter thereby allowing the imaging system to receive the external scene heat radiation through the lens onto the FPA;

generating an open state image signal based on the received external scene heat radiation; and

correcting the open state image signal based on the closed state image signal.

Claim 11. (Currently amended) The method of claim 10 wherein correcting the open state image signal includes compensating for pixel-to-pixel non-uniformities of a detector array included in the imaging system the FPA.

Claim 12. (Currently amended) The method of claim 10 wherein correcting the open state image signal includes compensating for offsets between the opened and closed states of the lens shutter.

Claim 13. (Currently Amended) The method of claim 10 wherein correcting the open state image signal includes compensating for pixel-to-pixel non-uniformities and offsets between the opened and closed states of the lens shutter.

Claim 14. (Canceled)

Claim 15. (Currently Amended) A method for manufacturing ~~[[an]]~~ a thermal imaging system, the method comprising:

providing a lens and a detector array, the lens being adapted to focus external scene radiation comprising heat radiating radiation from a scene in front of the lens onto ~~[[a]]~~ the detector array behind the lens; and

providing a shutter located in front of the lens whereby the shutter, lens and detector array comprise an imaging system, the shutter having a closed state that allows the detector array to generate a closed state image signal ~~that includes comprising~~ internal radiant flux of the imaging system ~~to be generated by the detector array~~, and an open state that allows the detector array to generate an open state image signal ~~that includes comprising the~~ external scene radiation ~~to be generated by the detector array~~.

Claim 16. (Currently Amended) The method of claim 15 ~~further comprising: providing a wherein the~~ detector array having comprises a plurality of pixels for detecting thermal scene radiation; ~~[[and]]~~ the method further comprising:

operatively coupling a signal processing module to the detector array, the signal processing module adapted to correct open state image signals based on closed state image signals.

Claim 17. (Original) The method of claim 16 further comprising:

operatively coupling a shutter controller to the shutter, the shutter controller adapted to command the shutter to its opened and closed states.

Claim 18. (Currently Amended) The method of claim 17 further comprising:

operatively coupling a system controller to the shutter controller and the processing module, the system controller adapted to control operation of the imaging system.

Claim 19. (Canceled)

Claim 20. (Original) The method of claim 15 further wherein the shutter has a lens side surface that is located within five millimeters of the front of the lens.

Claim 21. (New) The method of claim 16 further comprising:

operatively coupling a shutter controller to the shutter, the shutter controller adapted to command the shutter to its opened and closed states.

Claim 22. (New) The method of claim 17 further comprising:

operatively coupling a system controller to the shutter controller and the processing module, the system controller adapted to control operation of the imaging system.